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10/10/2008 08:13 AM

To Grisell Diaz-Cotto/R2/USEPA/US@EPA, <Elizabeth.A.Buckrucker@nwk02.usace.army.mil>
cc
bcc
Subject D Head - impact to groundwater soil cleanup levels

History: This message has been forwarded.

Hi Grisell, hi Beth,

I am attaching a table that shows soil cleanup levels based on impact to groundwater for the compounds in each class which had the highest soil concentrations during the Phase 1 RI. The table shows 2 cleanup levels:

1) The cleanup level which the NJDEP used until the new standards were promulgated. This level was not promulgated in the recent regulations but our experience with the NJDEP suggests that if this level is proposed to be used for a site, the NJDEP will likely accept it. This would be the default cleanup level.
2) The cleanup level calculated using site-specific values for the fraction of organic carbon and dilution attenuation factor in the equation identified for calculating site-specific cleanup levels in the newly promulgated regulations. Please note that site specific values can be estimated for other variables in this equation; however, that would be a very effort-intensive process and as the value that its results would bring is uncertain at this time, we did not attempt it.

The reason that we performed the calculations only for a small number of compounds at this time - is to assess how the calculated level differed (one way or another) from the default level. We thought that this information could be used to assess path forward - specifically whether to continue using the default values or calculate site-specific values based on 2 or more parameters.

The results show that for the compounds for which these calculations were performed, the differences between the two levels were not significant.

For the reasons below, therefore, we would like to propose that we continue (at least for now) to use the IGW soil cleanup levels that were used during the Phase 1 RI:

1) NJDEP will likely accept these default values.
2) Differences do not appear to be significant.
3) The remedial approach to take at the site has still not been determined - ie. will chemical-specific cleanup levels be required to be met or whether chemical concentrations can remain above cleanup levels (please see TM which I send on various options). If the 1st approach is selected, the remedial technologies will need to be very aggressive and if desired, we can calculate IGW cleanup levels (rather than using the default values) for the technologies to achieve. If the 2nd approach is selected (allowing for concentrations to remain above cleanup levels), then the default IGW levels will likely be acceptable to the NJDEP since concentrations will be left onsite above these levels. In the latter case, not performing further calculations will save funding.

I will call you Tuesday Grisell, to discuss path forward (do we need a call with Amanda, whether you would like additional info, other).

Have a great weekend and Columbus day off on Monday! Thank you Juliana

Table-comparison of IGW cleanup levels.pdf

Diamond Head Oil
Impact to Ground Water
NJDEP Default Values vs. Site Specific Values

Chemical Compound	Maximum Detected Concentration (Ph. 1 RI) (mg/kg)	Average Concentration (Ph. 1 RI) (mg/kg)	NJDEP Default IGW Criteria (mg/kg)	Site Specific IGW Criteria (mg/kg)	Comments
VOCs					
Methyl isobutyl ketone	150	10.1	-	-	No standard established (exceeded Phase 1 IGW criteria, not soil standards)
Xylenes	490	67	12	2.1	Exceeds both Phase 1 IGW and soil standards)
Trichloroethylene	83	3.4	0.007	0.005	controlled by soil PQL; exceeds both Phase1 IGW and soil standards
Tetrachloroethylene	19	1.38	0.005	0.005	controlled by soil PQL; exceeds both Phase1 IGW and soil standards
Dichloroethylene -1,2 cis	7.6	0.66	0.2	0.025	Exceeds Phase 1 IGW standard
SVOCs					
Dimethylphenol-2,4	11	2.2	0.7	0.2	controlled by soil PQL; exceeds Phase 1 IGW
Benzo(a)anthracene	46	9.8	0.52	0.2	
Chrysene	44	10.8	52	10	Exceeds Phase 1 soil standard
Benzo(b)fluoranthene	42	6.5	1.6	0.31	Exceeds Phase 1 soil standard
PCBs					
Aldrin	0.12	0.03	0.13	0.025	Exceeds Phase 1 soil standard
Dieldrin	0.062	0.025	0.003	0.003	Exceeds Phase 1 soil standard; controlled by soil PQL
Metals					
Zinc	63700	1740	310	600	Exceeds Phase 1 soil standard
Lead	37200	2027	59	45	Exceeds Phase 1 soil standard
Copper	19600	685	560	7300	Exceeds Phase 1 soil standard

Notes:
Compounds listed represent examples of highest concentration data exceedances to soil IGW or NRDCSCC / RDCSCC as described in "Column F" Comments
Concentration data is from Ph. 1 RI - Table 4-15
IGW = Impact to Ground Water
RDCSCC = NJDEP Residential Direct Contact Soil Cleanup Criteria
NRDCSCC = NJDEP Non-Residential Direct Contact Soil Cleanup Criteria
Column D : NJDEP Default IGW Criteria - based on Table 1 of "Guidance Document: Development of Site-Specific Impact to Ground water soil remediation standards using the Soil-Water Partitioning Equation (June 2008)
Column E: Site Specific IGW Criteria - Developed using site specific Organic Carbon Content of Soil and Dilution Attenuation Factor (DAF) together with the NJDEP Excel Workbook for Eq. 1A & Eq. 1B of the Guidance Document

All values derived from NJDEP's partition equation
located at www.state.nj.us/dep/srp/guidance/rs/partition_equation.xls

Variable values in equation:

	Default Value	Diamond Head Site Specific Value Used:
TOC:	0.002g/g	0.005g/g
DAF	13	1

Site Specific Organic Carbon Content of soil value determination based on average from 3 data points from Ph. 1 RI Soil Data:
=0.005g/g
(4300,4300,7500mg/kg)

DAF (dilution attenuation factor):
Determined by using equations located in the NJDEP's DAF guidance document

d= 32.98 (Formula)
DAF= 1.01 (Formula)